

WHAT IS CLAIMED IS:

1. A method for fabricating a buried strap,
comprising the steps of:

5 forming a dielectric collar along sidewalls of a
trench, the trench formed in a substrate;

filling the trench with a conductive material;

recessing the conductive material in the trench to
expose a portion of the collar;

10 depositing a masking layer in the trench over the
exposed portion of the collar;

removing a portion of the masking layer over one
side of the collar;

etching a portion of the collar on the one side;
and

15 forming a buried strap on the conductive material,
which connects to the substrate on the one side.

2. The method as recited in claim 1, wherein the
masking layer includes nitride.

20 3. The method as recited in claim 1, wherein the
step of removing a portion of the masking layer includes
patterning a cut mask for etching the masking layer.

4. The method as recited in claim 1, wherein the step of removing a portion of the masking layer includes the steps of:

forming a polysilicon layer over the trench;

5 doping and oxidizing the polysilicon layer in predetermined areas;

removing the polysilicon layer in other than the predetermined areas; and

10 etching the masking layer the in accordance with the predetermined areas.

5. The method as recited in claim 1, further comprising the step of forming isolation trenches in communication with the trench.

15 6. The method as recited in claim 5, further comprising the steps of:

oxidizing surfaces within the isolation trenches;

20 lining the isolation trenches with a nitride layer;

filling the isolation trenches with a dielectric material.

25 7. The method as recited in claim 6, further comprising the steps of:

protecting portions of the nitride layer in communication with the trench during the step of removing a portion of the masking layer by employing surfaces oxidized in the step of oxidizing surfaces.

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8. The method as recited in claim 6, wherein the step of oxidizing surfaces includes forming an oxide between about 70 angstroms to about 90 angstroms in thickness.

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10 9. The method as recited in claim 1, wherein the step of forming a buried strap includes the steps of:
depositing a buried strap conductor in the trench;
and
etching back the buried strap conductor.

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10. A method for fabricating a one-sided buried strap, comprising the steps of:

forming a dielectric collar along sidewalls of a trench, the trench formed in a substrate;

20 filling the trench with a conductive material;
etching isolation trenches in communication with the trench;

oxidizing surfaces within the isolation trenches;
lining the isolation trenches with a nitride

25 layer;

filling the isolation trenches with a dielectric material;

recessing the conductive material in the trench to expose a portion of the collar;

5 depositing a masking layer in the trench over the exposed portion of the collar;

removing a portion of the masking layer over one side of the collar;

etching a portion of the collar on the one side;

10 and

forming a buried strap on the one side.

11. The method as recited in claim 10, wherein the masking layer includes nitride.

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12. The method as recited in claim 10, wherein the step of removing a portion of the masking layer includes patterning a cut mask for etching the masking layer.

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13. The method as recited in claim 10, wherein the step of removing a portion of the masking layer includes the steps of:

forming a polysilicon layer over the trench;

doping and oxidizing the polysilicon layer in

25 predetermined areas;

removing the polysilicon layer in other than the predetermined areas; and

etching the masking layer the in accordance with the predetermined areas.

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14. The method as recited in claim 10, further comprising the steps of:

protecting portions of the nitride layer in communication with the trench during the step of removing a portion of the masking layer by employing surfaces oxidized in the step of oxidizing surfaces.

15. The method as recited in claim 10, wherein the step of oxidizing surfaces includes forming an oxide between about 70 angstroms to about 90 angstroms in thickness.

16. The method as recited in claim 10, wherein the step of forming a buried strap includes the steps of:

20 depositing a buried strap conductor in the trench; and

etching back the buried strap conductor.

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